

NOTES:

1. INSTALL AVIATION TAPE EVERY 18 in OR AS NECESSARY ON ALL TUBE ASSEMBLIES

SHEET	REV	ECO	DATE	DESCRIPTION	BY	CHK	APR
1-9	A		01/03/97	MODIFIED -4,-5,-6,-8,-11 ASSY	REB	REB	REB
1,3	B		02/21/97	ES39500-1 REMOVED FROM -7 ASSY	REB	REB	REB
1,6-9	C		06/17/97	ES39501 WAS S-5018, MOD'F ANGLES ON -5 ASSY, REMOVED S-5018 ON -13	REB	REB	REB
1,3	D		12/22/97	CHANGE LENGTH OF -7 TUBE ASSY. TO 4.25'	REB	REB	REB
1,10	E		12/10/99	ADDED SHT 10 & 11, ASSY. -14,-15,-16	MR	LS	MR
1,10,11	F		08/19/05	17.75 WAS 19.00, -14 TUBE ASSY. ADDED -17, -18 TUBE ASSY'S	REB	LS	REB
1-11	G		07/05/07	ADDED BEND TABLES TO -3/-4/-5/-6/-9/-10/-14/-16. ADDED FIRESLEEVE CALLOUTS TO -4/-5/-16. BEND RADII WAS 1.5' ON -6/-9/-10/-11/-12. -3 ASSY: 15.62 WAS 15.75 (TO BEND 6), ADDED DIMS 10.96, 1.26. -4 ASSY: DIM 3.02 WAS 2.77, REMOVED 3" BEND, 169" WAS 166". -5 ASSY: ASSIGNED BENDS 1,2,3. ADDED TUBE ROTATION VIEW. -6/-11 ASSY'S: LENGTH DIMS WERE TO END OF BENDS. -9 ASSY: ADDED DIMS 11.38, 2.58, 1.28, & 10.76. -10 ASSY: ADDED DIMS 13.56(REF), 6.54, 6.02, 12.62(REF) WAS 12.13(REF), 1.77 WAS 1.25. -12 ASSY: 1.34 WAS 1.19, 10.40 WAS 10.25. -14 ASSY: ADDED DIMS 23.87, 4.57, 2.91, 49.86(REF); 17.62 WAS 17.75 (TO 6) -16 ASSY: 2.69 WAS 2.77; 4.71(REF) WAS 4.75(REF). ADDED SEGMENT LENGTHS, FRACTIONAL (ft. & Inches) TUBE LENGTHS. ADDED 304SS & 5052-0 TO BOM.	REB	LS	REB
1,9		1	05/19/08	DEFINED AVIATION TAPE NOTE AS NOTE 1. CRCT'N BH-9 WAS BH-7 AND REPLACED FERRULE, NUT, & SLEEVE ON -5 FIGURE ONLY.	REB	CEH	REB
1,10		2	12/01/10	REMOVED ES39500-1 FERRULE FROM ITEM -15 ASSY	REB	LS	REB
1, 6-8	H		05/26/20	P/N ES39501-1 UPDATED TO ES39500-2. 32" DIM ON -9 ASSY NOW 30.5"	DT	LS	ZA
1, 12	J		03/23/21	ADDED SHEET 12 AND ASSEMBLY S-5017-19. UPDATED FIRE SLEEVE LENGTHS ON -7, -11, -10, -12, AND -14.	DT	LS	ZA
ALL	K		02/21/22	MOVED BOM TO NEW SHEET 2. INCREMENTED SUBSEQUENT PAGES. ADDED ALTERNATE SLEEVE AND NUT P/NS.	DT	ZA	DT

BREAK ALL SHARP EDGES

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PROTO

N/C

Paravion® Inc.		TITLE		DRAWING NO.	
✓ Technology		TUBE ASSEMBLY		S-5017	
DIMENSIONS IN INCHES					
TOLERANCES EXCEPT WHERE NOTED:					
DRAWN BY	APRVD. BY	CHK'D BY	DATE	REV	ECO
RHSM	REB	LS	11/26/96	K	
DO NOT SCALE DRAWING				SHEET	
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.X = ± .1
.XX = ± .05
.XXX = ± .010

ANGLES = ± 1°

			10.4	3.75								4.25	16.2	45.4	15.8				5052-0	TUBE: 1/2 X .035W SEAMLESS (QTY IN INCHES)	WW-T-700/4	
						4.00	12.3	20.6	16.0	30.9	13.9								5052-0	TUBE: 3/8 X .035W SEAMLESS (QTY IN INCHES)	WW-T-700/4	
																		14.7	304SS	TUBE: 5/8 X .035W SEAMLESS (QTY IN INCHES)	ASTM-A269-92	
52.55	6.33	16.2			50.9											35.2	14.7		304SS	TUBE: 1/2 X .035W SEAMLESS (QTY IN INCHES)	ASTM-A269-92	
16		4	3	3	16	4	4	4	4	8	4	4	4	16	4	8	4	4	ES82100-1	AVIATION TAPE (QTY IN INCHES)	(SEE NOTE 1)	
53.5		16	9	3.75	49.5							3.25	15	45	14	35	14.5	14.5	BH-9	FIRE SLEEVE (QTY IN INCHES)		
						4	11.5	20	15.25	30.5	13.5								BH-7	FIRE SLEEVE (QTY IN INCHES)		
																		2	AN819-10J	SLEEVE (ALT: MS20819-10J, AS5176J10)		
																		2	AN818-10J	NUT (ALT: AS5175J10)		
2	2	2			2											2	2		AN819-8J	SLEEVE (ALT: MS20819-8J, AS5176J08)		
2	2	2			2											2	2		AN818-8J	NUT (ALT: AS5175J08)		
			2	2								2	2	2	2				AN819-8D	SLEEVE (ALT: MS20819-8D, AS3220D08)		
			2	2								2	2	2	2				AN818-8D	NUT (AS5175W08, AN818-8W)		
						2	2	2	2	2	2								AN819-6D	SLEEVE (ALT: MS20819-6D, AS3220D06)		
						2	2	2	2	2	2								AN818-6D	NUT (ALT: AS5175W06, AN818-6W)		
							2	2	2	2	2								ES39500-2	FERRULE		
2		2	2		2								2	2	2	2	2	2	ES39500-1	FERRULE		
-19	-18	-17	-16	-15	-14	-13	-12	-11	-10	-9	-8	-7	-6	-5	-4	-3	-2	-1	PART NO	DESCRIPTION	SPEC.	
ASSY	ASSY	ASSY	ASSY	ASSY	ASSY	ASSY	ASSY	ASSY	ASSY	ASSY	ASSY	ASSY	ASSY	ASSY	ASSY	ASSY	ASSY	ASSY		Paravion® Technology Inc.	TITLE	DRAWING NO. S-5017
QTY.	QTY.	QTY.	QTY.	QTY.	QTY.	QTY.	QTY.	QTY.	QTY.	QTY.	QTY.	QTY.	QTY.	QTY.	QTY.	QTY.	QTY.	QTY.				

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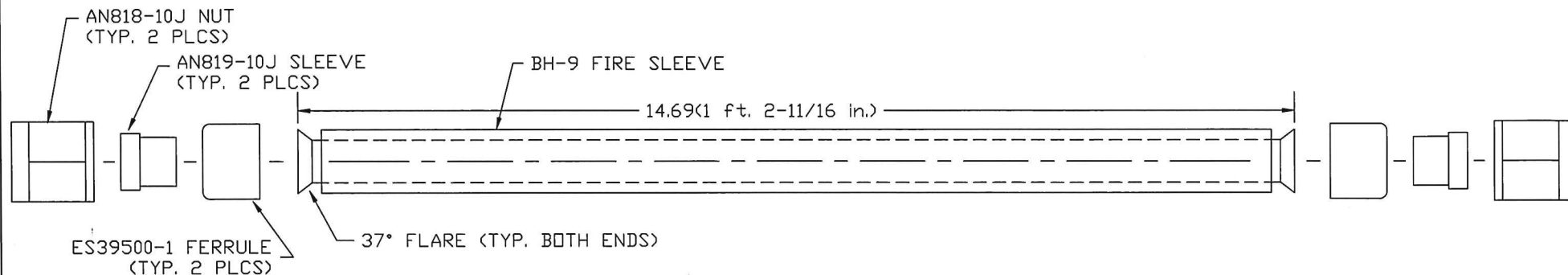
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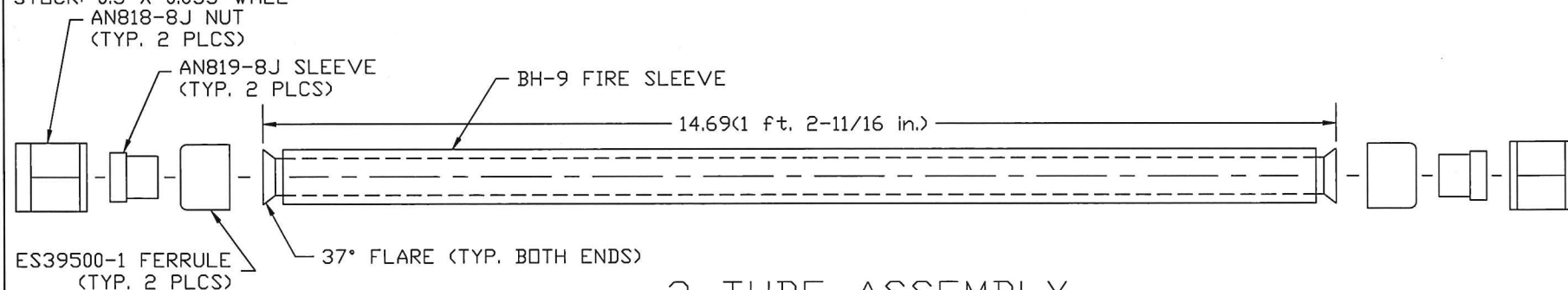
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DIMENSIONS IN INCHES TOLERANCES EXCEPT WHERE NOTED:		DRAWN BY DT	APRVD. BY DT	CHK'D BY ZA	DATE 02/21/22
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MATERIAL: 304 STAINLESS STEEL ASTM-A269-92
STOCK: 0.625 X 0.035 WALL



-1 TUBE ASSEMBLY

MATERIAL: 304 STAINLESS STEEL ASTM-A269-92
STOCK: 0.5 X 0.035 WALL



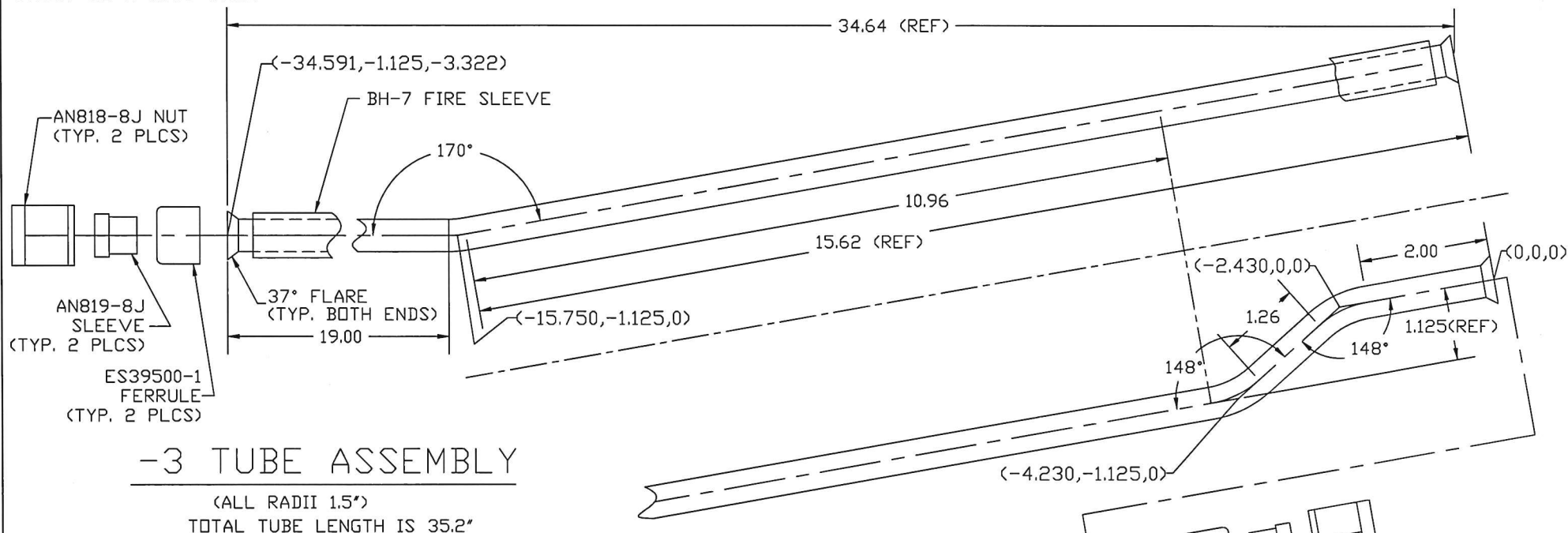
-2 TUBE ASSEMBLY

BREAK ALL SHARP EDGES

Paravion® Technology Inc.		TITLE TUBE ASSEMBLY		DRAWING NO. S-5017	
DIMENSIONS IN INCHES TOLERANCES EXCEPT WHERE NOTED:		DRAWN BY RHSM	APRVD. BY REB	CHK'D BY REB	DATE 11/26/96
.X = ± .1 .XX = ± .05 .XXX = ± .010		DO NOT SCALE DRAWING			REV K
ANGLES = ± 1°		© 2022 PARAVION TECH., INC. PARAVION IS A TRADEMARK OF PARAVION TECHNOLOGY, INC.			SHEET 3 OF 13

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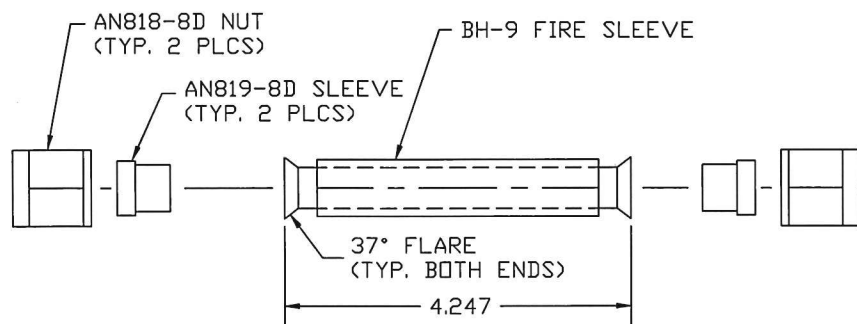
MATERIAL: 304 STAINLESS STEEL ASTM-A269-92
STOCK: 0.5 X 0.035 WALL



-3 TUBE ASSEMBLY

(ALL RADII 1.5")
TOTAL TUBE LENGTH IS 35.2"

MATERIAL: 5052-D WW-T-700/4
STOCK: 0.5 X 0.035 WALL



-7 TUBE ASSEMBLY

BREAK ALL SHARP EDGES

Bend	Tube Length to Bend Start	Tangent Angle Setting, Deg.	Bend Angle, Deg.	Arc Length
1	2.00 (2in.)	0.0	32.0	0.84 inch
2	4.10 (4-1/8in.)	180.0	32.0	0.84
3	15.90 (1ft. 3-7/8in.)	90.0	10.0	0.26

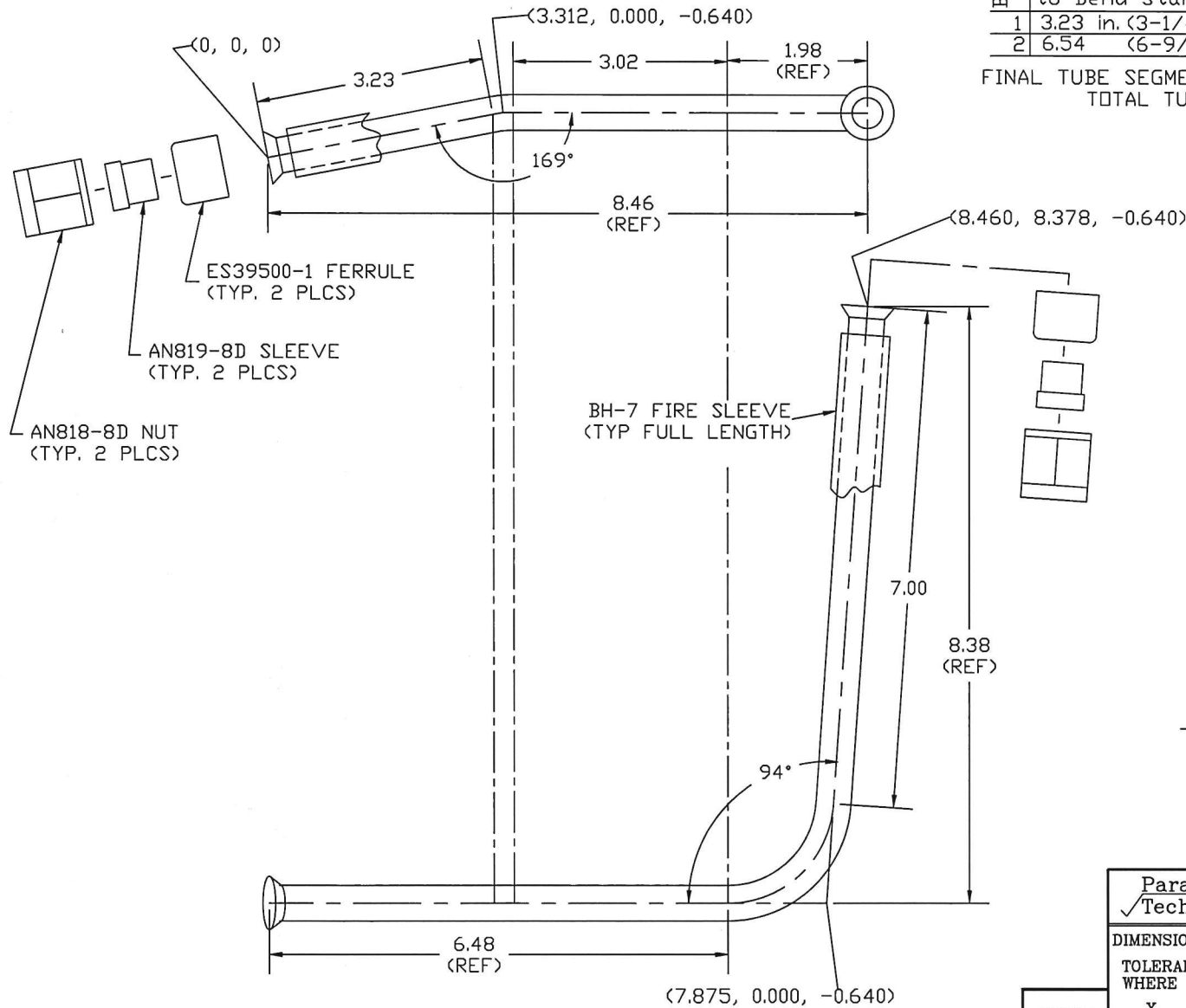
FINAL TUBE SEGMENT LENGTH = 19.00 inches (1ft. 7in.)
TOTAL TUBE LENGTH = 35.16 inches (2ft. 11-3/16in.)

Paravion® Technology Inc.		TITLE TUBE ASSEMBLY		DRAWING NO. S-5017	
DIMENSIONS IN INCHES TOLERANCES EXCEPT WHERE NOTED:		DRAWN BY RHSM	APRVD. BY REB	CHK'D BY LS	DATE 11/26/96
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N/C

MATERIAL: 5052-D WW-T-700/4
STOCK: 0.5 X 0.035 WALL



Bend No.	Tube Length to Bend Start	Tangent Angle Setting, Deg.	Bend Angle Deg.	Bend Radius	Arc Length
1	3.23 in. (3-1/4)	0.0	10.9	1.5 in.	0.29 in.
2	6.54 (6-9/16)	90.0	86.0	1.5 in.	2.25

FINAL TUBE SEGMENT LENGTH = 7.00 inch
TOTAL TUBE LENGTH = 15.79 inches (1 ft. 3-13/16in.)

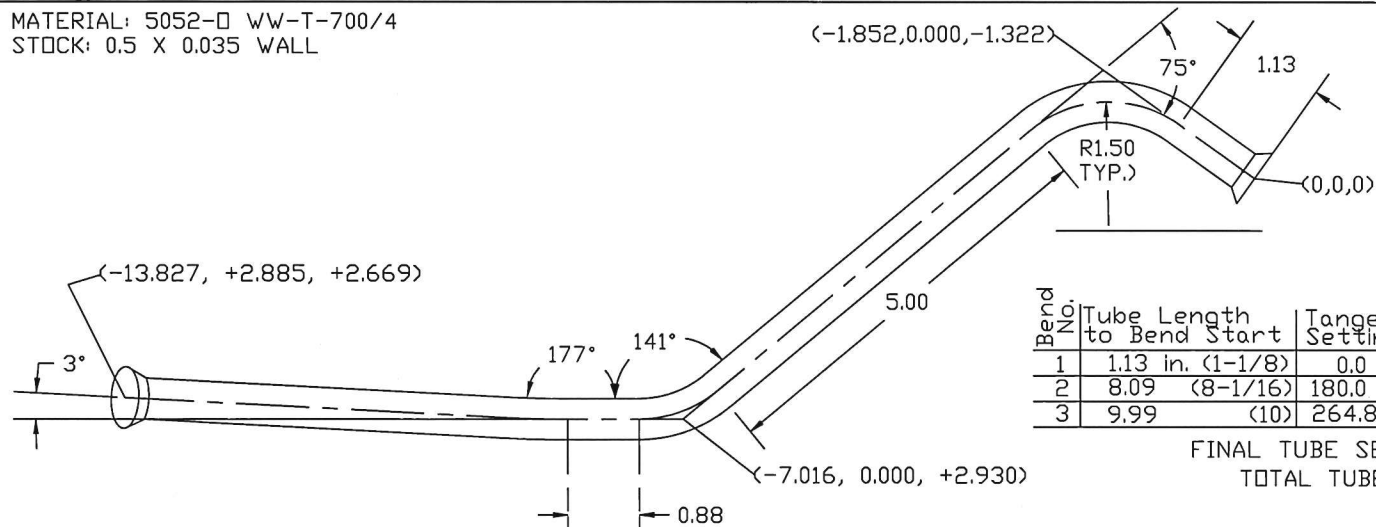
-4 TUBE ASSEMBLY

BREAK ALL SHARP EDGES

Paravion® Inc. Technology		TITLE TUBE ASSEMBLY		DRAWING NO. S-5017	
DIMENSIONS IN INCHES TOLERANCES EXCEPT WHERE NOTED:		DRAWN BY RHSM	APRVD. BY REB	CHK'D BY REB	DATE 11/26/96
PROTO		DO NOT SCALE DRAWING		REV K	ECO
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.X = ± .1
.XX = ± .05
.XXX = ± .010
ANGLES = ± 1°

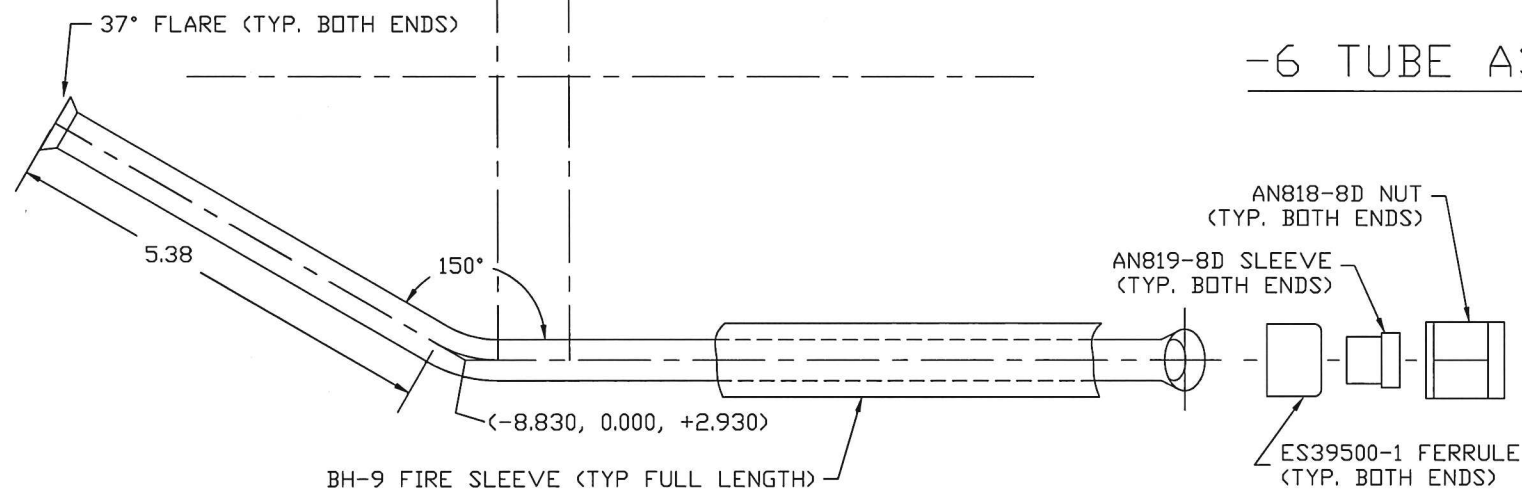
MATERIAL: 5052-0 WW-T-700/4
STOCK: 0.5 X 0.035 WALL



Bend No.	Tube Length to Bend Start	Tangent Setting, Angle Deg.	Bend Angle, Deg.	Arc Radius	Arc Length
1	1.13 in. (1-1/8)	0.0	75.0	1.50 inch	1.96 inch
2	8.09 (8-1/16)	180.0	39.5	1.50	1.03
3	9.99 (10)	264.8	30.1	1.50	0.79

FINAL TUBE SEGMENT LENGTH = 5.37 inch(5-3/8in.)
TOTAL TUBE LENGTH = 16.15 inches(1ft. 4-1/8in.)

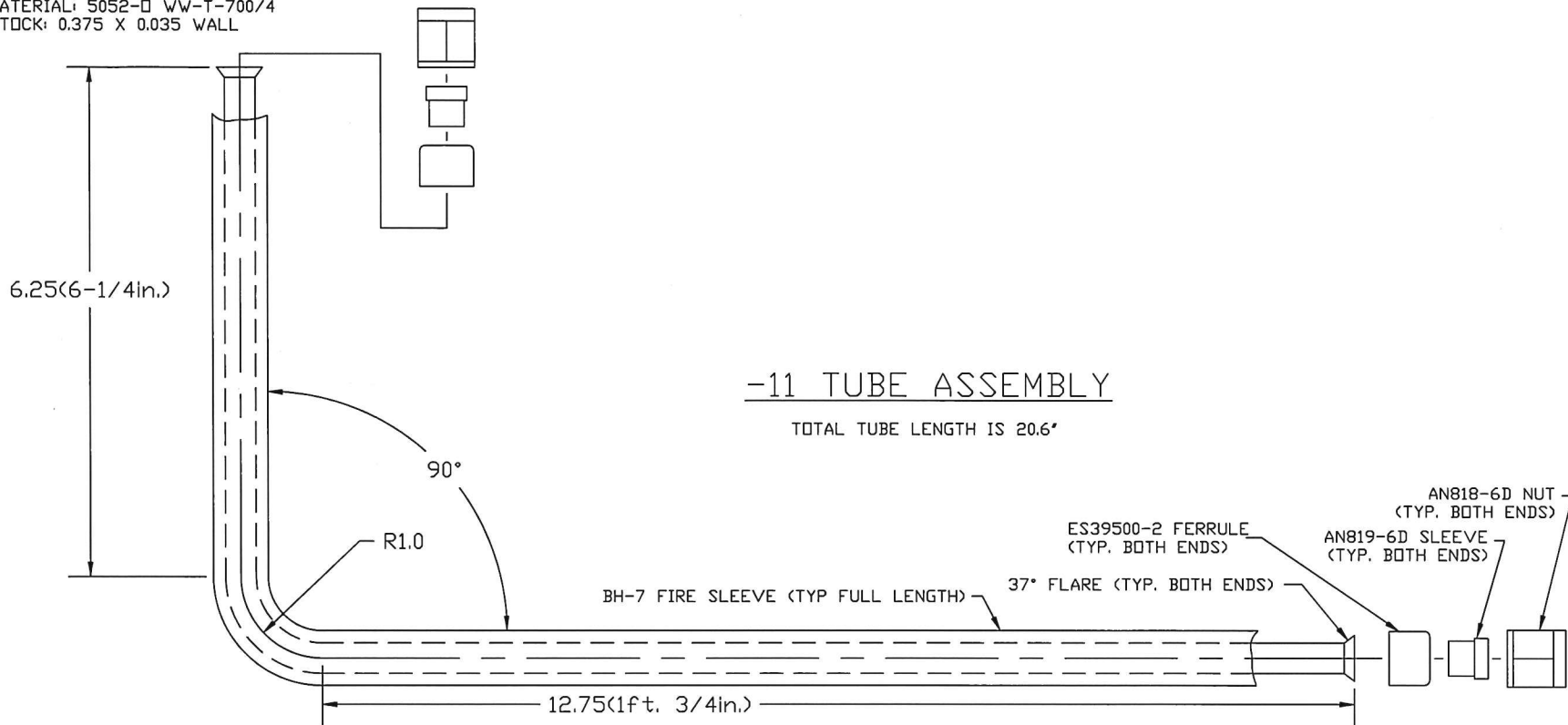
-6 TUBE ASSEMBLY



BREAK ALL SHARP EDGES

<div>Paravion® ✓Technology</div> <div>Inc.</div>	TITLE			DRAWING NO.		
	TUBE ASSEMBLY			S-5017		
DIMENSIONS IN INCHES						
TOLERANCES EXCEPT WHERE NOTED: .X = ± .1 .XX = ± .05 .XXX = ± .010 ANGLES = ± 1°	DRAWN BY	APRVD. BY	CHK'D BY	DATE	REV	ECO
	RHSM	REB	REB	11/26/96	K	
	DO NOT SCALE DRAWING				SHEET	
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					6 OF 13	

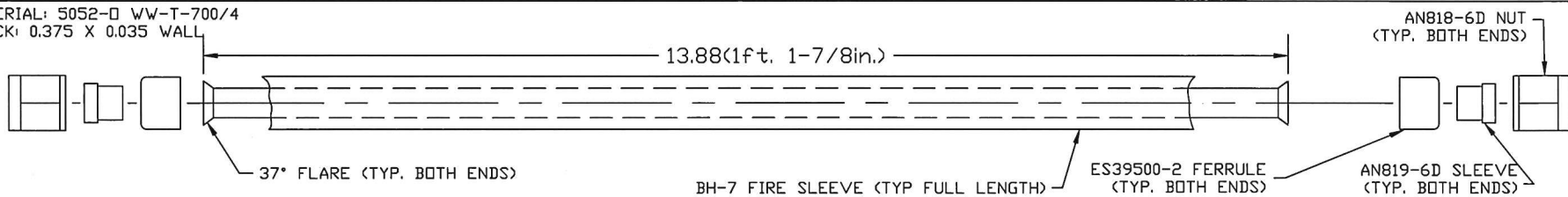
MATERIAL: 5052-O WW-T-700/4
STOCK: 0.375 X 0.035 WALL



-11 TUBE ASSEMBLY

TOTAL TUBE LENGTH IS 20.6'

MATERIAL: 5052-O WW-T-700/4
STOCK: 0.375 X 0.035 WALL



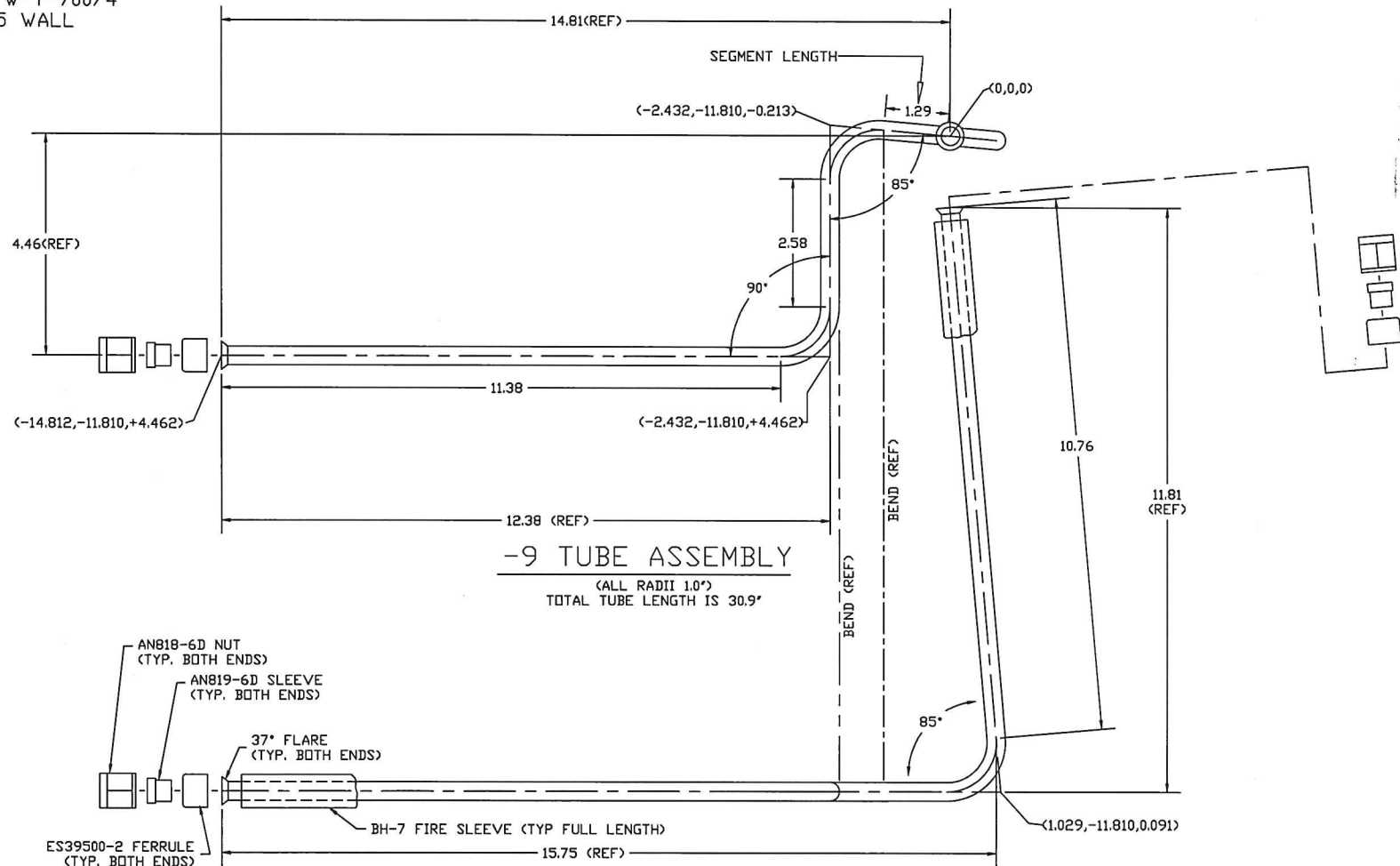
-8 TUBE ASSEMBLY

BREAK ALL SHARP EDGES

Paravion® Inc. Technology		TITLE		DRAWING NO.		
		TUBE ASSEMBLY		S-5017		
DIMENSIONS IN INCHES		DRAWN BY	APRVD. BY	CHK'D BY	DATE	REV
TOLERANCES EXCEPT WHERE NOTED:		RHSM	REB	LS	11/26/96	K
.X = ± .1						
.XX = ± .05						
.XXX = ± .010						
ANGLES = ± 1°						
		DO NOT SCALE DRAWING				SHEET
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PROTO
N/C

MATERIAL: 5052-O WW-T-700/4
STOCK: 0.375 X 0.035 WALL



-9 TUBE ASSEMBLY
(ALL RADII 1.0")
TOTAL TUBE LENGTH IS 30.9"

Bend No.	Tube Length to Bend Start	Tangent Angle Setting, Deg.	Bend Angle, Deg.	Arc Radius	Arc Length
1	10.76 in. (10-3/4 in.)	0.0	95.0	1.00 inch	1.66 inch
2	13.71 (1ft. 1-11/16 in.)	90.0	95.0	1.00	1.66
3	17.96 (1ft. 5-15/16 in.)	270.0	90.0	1.00	1.57

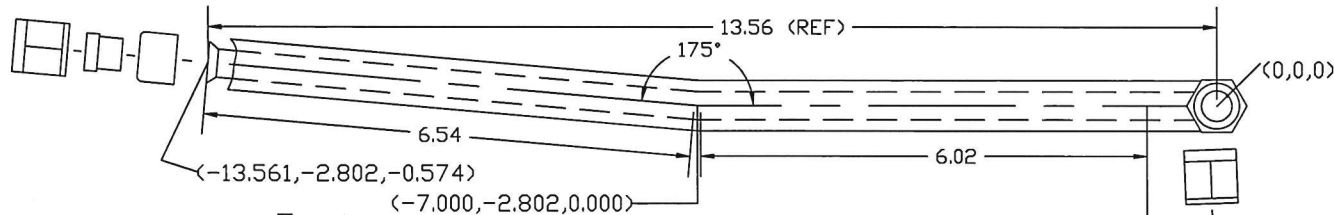
FINAL TUBE SEGMENT LENGTH = 11.38 inch
TOTAL TUBE LENGTH = 30.91 inches

PROTO
N/C

Paravion® Inc. ✓Technology		TITLE TUBE ASSEMBLY			DRAWING NO. S-5017	
DIMENSIONS IN INCHES		DRAWN BY RHSM		APRVD. BY REB	CHK'D BY LS	DATE 11/26/96
TOLERANCES EXCEPT WHERE NOTED:						REV K
.X = ± .1						ECO
.XX = ± .05						
.XXX = ± .010						
ANGLES = ± 1°						
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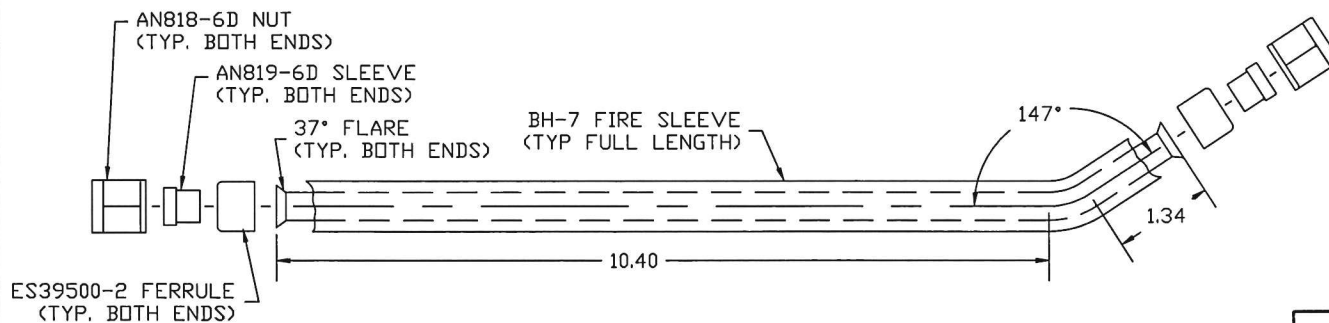
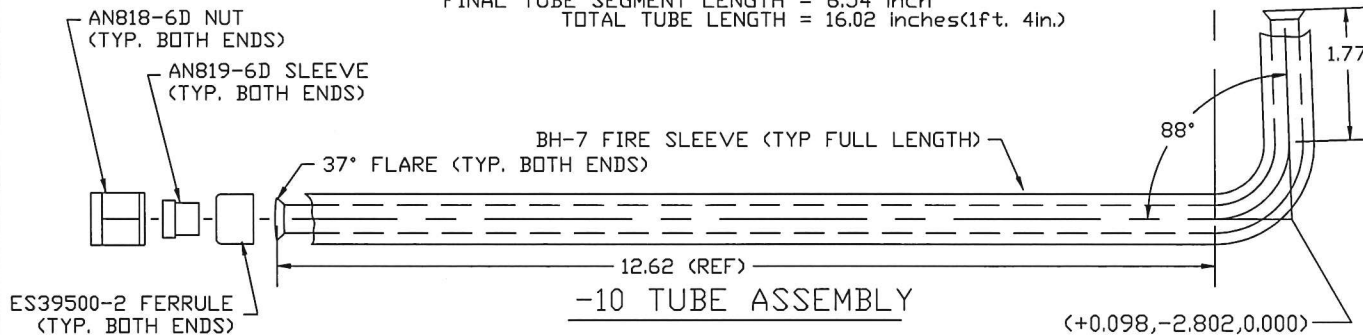
BREAK ALL SHARP EDGES

MATERIAL: 5052-O WW-T-700/4
STOCK: 0.375 X 0.035 WALL

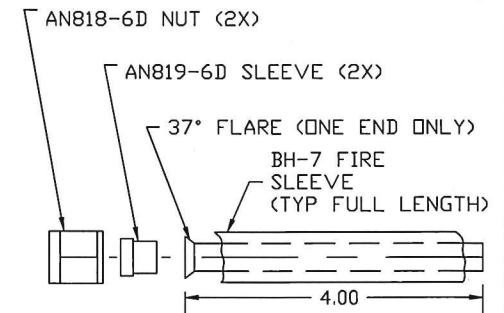


Bend No.	Tube Length to Bend Start	Tangent Angle Setting, Deg.	Bend Angle, Deg.	Arc Radius	Arc Length
1	1.77 in. (1-3/4)	0.0	92.0	1.00 inch	1.61 inch
2	9.39 (9-3/8)	270.0	5.0	1.00	0.09

FINAL TUBE SEGMENT LENGTH = 6.54 inch
TOTAL TUBE LENGTH = 16.02 inches (1ft. 4in.)



-12 TUBE ASSEMBLY
(BEND RADIUS 1.0°)
TOTAL TUBE LENGTH IS 12.3"



-13 TUBE ASSEMBLY

BREAK ALL SHARP EDGES

Paravion® Inc. ✓Technology		TITLE TUBE ASSEMBLY			DRAWING NO. S-5017			
DIMENSIONS IN INCHES		DRAWN BY		APRVD. BY	CHK'D BY	DATE	REV	ECO
TOLERANCES EXCEPT WHERE NOTED:		RHSM		REB	LS	11/26/96	K	
.X = ± .1								
.XX = ± .05								
.XXX = ± .010								
ANGLES = ± 1°		DO NOT SCALE DRAWING					SHEET	
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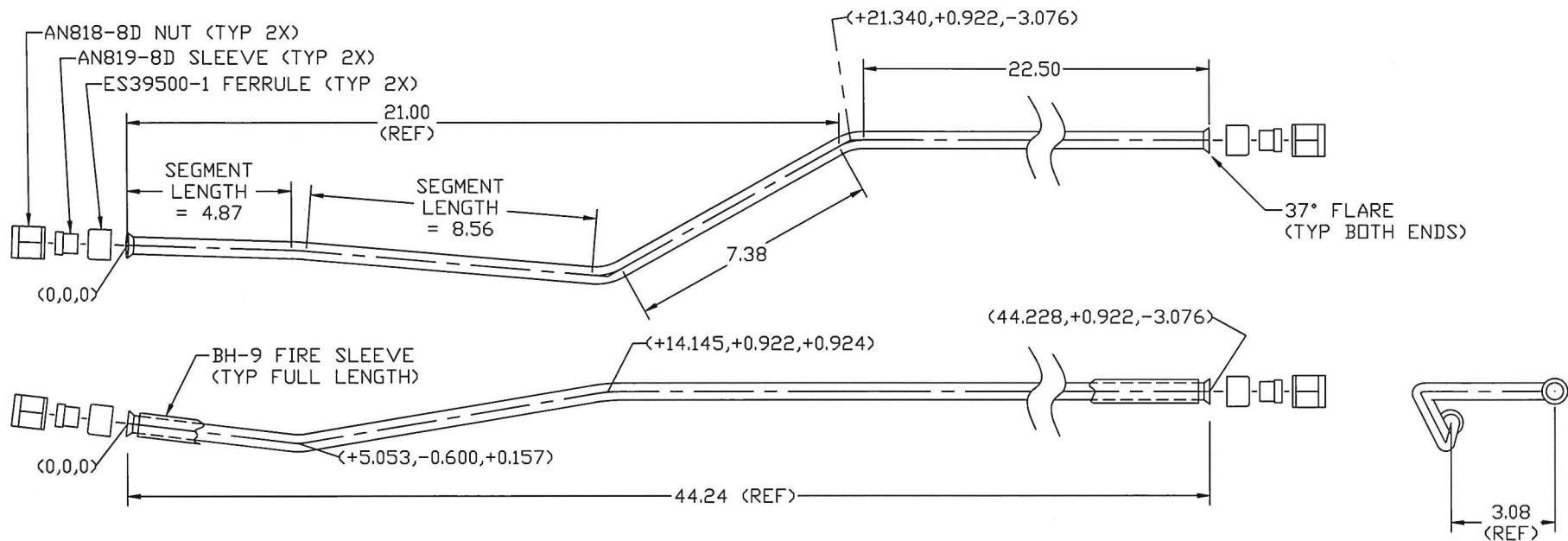
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MATERIAL: 5052-0 WW-T-700/4
STOCK: 0.5 X 0.035 WALL

Bend No	Tube Length to Bend Start	Tangent Angle Setting, Deg.	Bend Angle, Deg.	Arc Radius	Arc Length
1	4.87 in. (4-7/8in.)	0.0	16.5	1.50 inch	0.43 inch
2	13.87 (1ft. 1-7/8in.)	114.4	35.0	1.50	0.92
3	22.15 (1ft. 10-1/8in.)	277.8	29.1	1.50	0.76

FINAL TUBE SEGMENT LENGTH = 22.50 inches (1ft. 10-1/2in.)

TOTAL TUBE LENGTH = 45.41 inches (3ft. 9-1/2in.)



-5 TUBE ASSEMBLY

BREAK ALL SHARP EDGES

Paravion® Technology Inc.		TITLE TUBE ASSEMBLY			DRAWING NO. S-5017		
DIMENSIONS IN INCHES TOLERANCES EXCEPT WHERE NOTED:		DRAWN BY RHSM	APRVD. BY REB	CHK'D BY LS	DATE 11/26/96	REV K	ECO
.X = ± .1 .XX = ± .05 .XXX = ± .010		DO NOT SCALE DRAWING				SHEET 10 OF 13	
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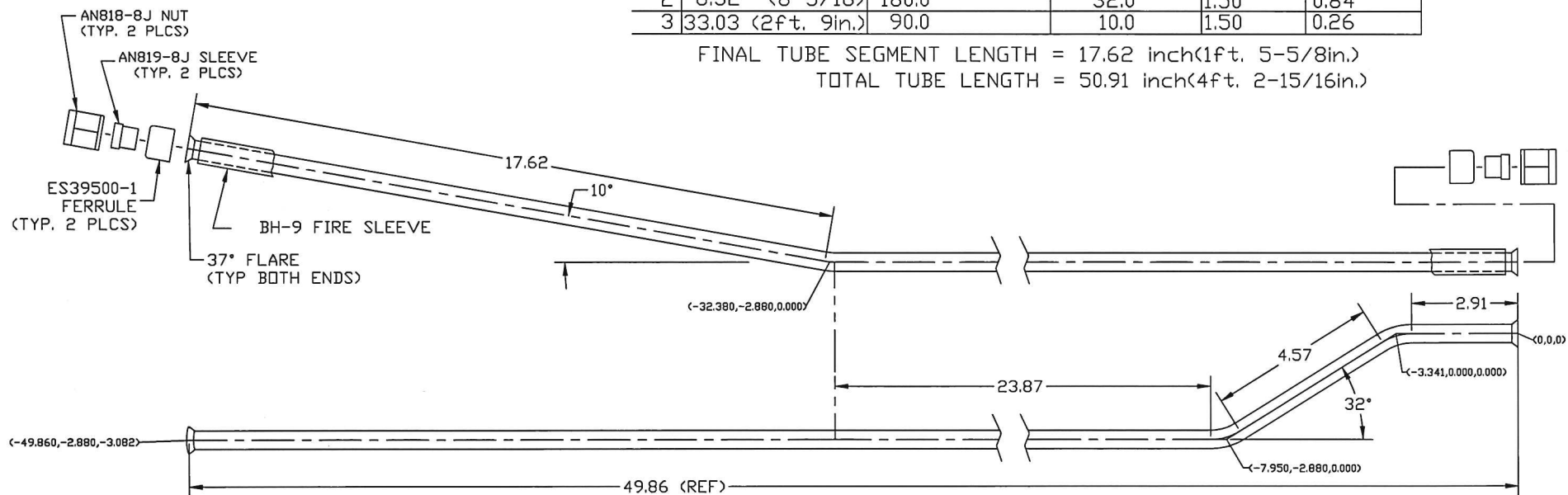
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MATERIAL: 304 STAINLESS STEEL ASTM-A269-92
STOCK: 0.5 X 0.035 WALL

Bend Z	Tube Length to Bend Start	Tangent Angle Setting, Deg.	Bend Angle, Deg.	Arc Radius	Arc Length
1	2.91 in(2-15/16)	0.0	32.0	1.50 inch	0.84 inch
2	8.32 (8-5/16)	180.0	32.0	1.50	0.84
3	33.03 (2ft. 9in.)	90.0	10.0	1.50	0.26

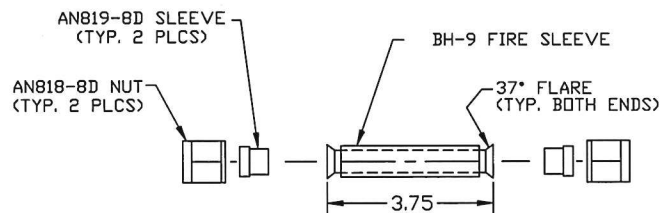
FINAL TUBE SEGMENT LENGTH = 17.62 inch(1ft. 5-5/8in.)

TOTAL TUBE LENGTH = 50.91 inch(4ft. 2-15/16in.)



-14 TUBE ASSEMBLY

MATERIAL: 5052-O WW-T-700/4
STOCK: 0.5 X 0.035 WALL



-15 TUBE ASSEMBLY

Paravion® Inc. Technology		TITLE TUBE ASSEMBLY		DRAWING NO. S-5017	
DIMENSIONS IN INCHES TOLERANCES EXCEPT WHERE NOTED:		DRAWN BY KRG	APRVD. BY MR	CHK'D BY LS	DATE 12/10/99
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ANGLES = ± 1°		© 2022 PARAVION TECH, INC. PARAVION IS A TRADEMARK OF PARAVION TECHNOLOGY, INC.			ECO
SHEET 11 OF 13					

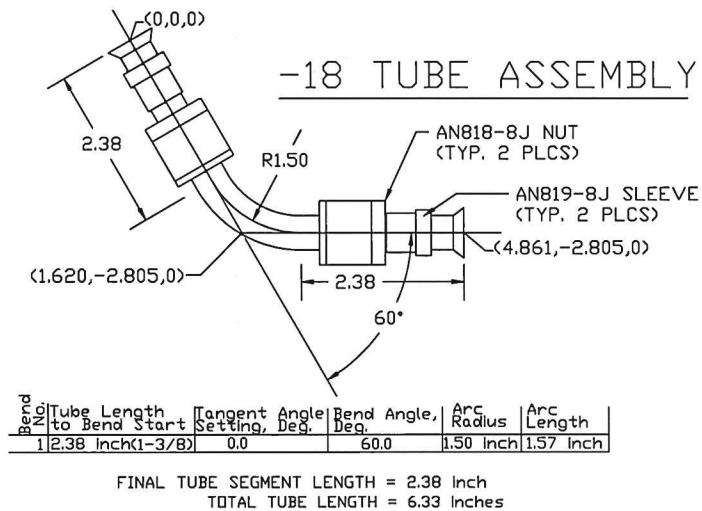
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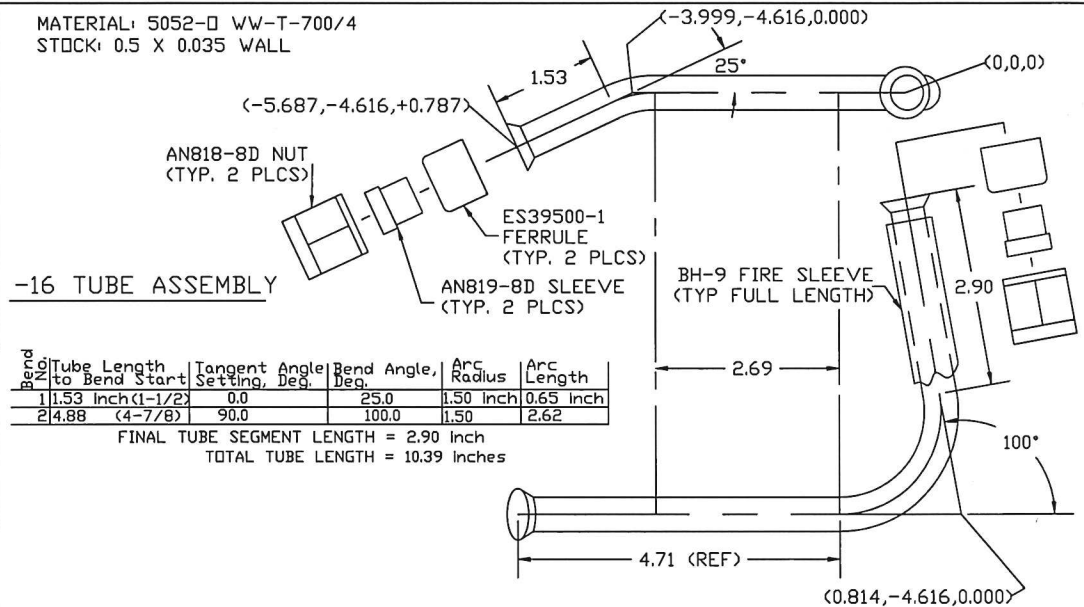
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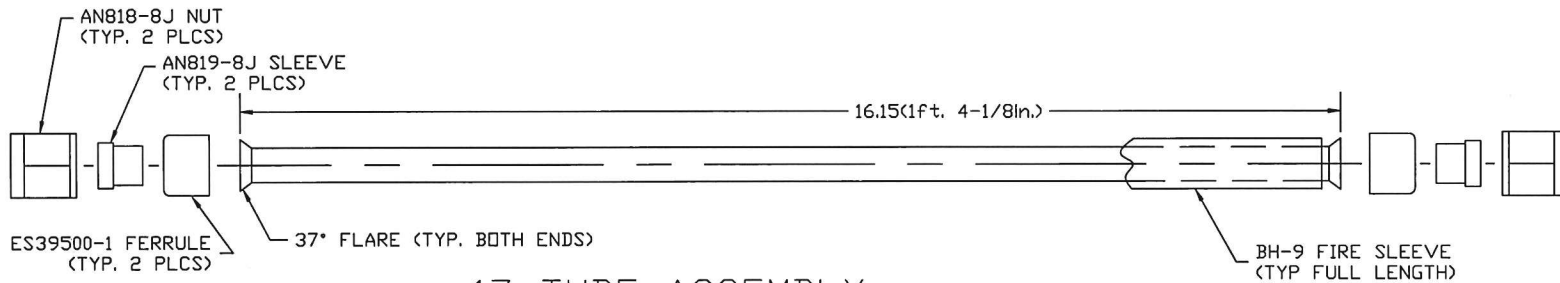
MATERIAL: 304 STAINLESS STEEL ASTM-A269-92
STOCK: 0.5 X 0.035 WALL



MATERIAL: 5052-O WW-T-700/4
STOCK: 0.5 X 0.035 WALL



MATERIAL: 304 STAINLESS STEEL ASTM-A269-92
STOCK: 0.5 X 0.035 WALL



Paravion® Inc.		TITLE		DRAWING NO.	
Technology		TUBE ASSEMBLY		S-5017	
DIMENSIONS IN INCHES		DRAWN BY	APRVD BY	CHK'D BY	DATE
TOLERANCES EXCEPT WHERE NOTED:		RHSM	REB	REB	11/26/96
.X = ± .1		DO NOT SCALE DRAWING			REV K
.XX = ± .05		© 2022 PARAVION TECH, INC.			ECO
.XXX = ± .010		PARAVION IS A TRADEMARK OF PARAVION TECHNOLOGY, INC.			SHEET 12 OF 13
ANGLES = ± 1°					

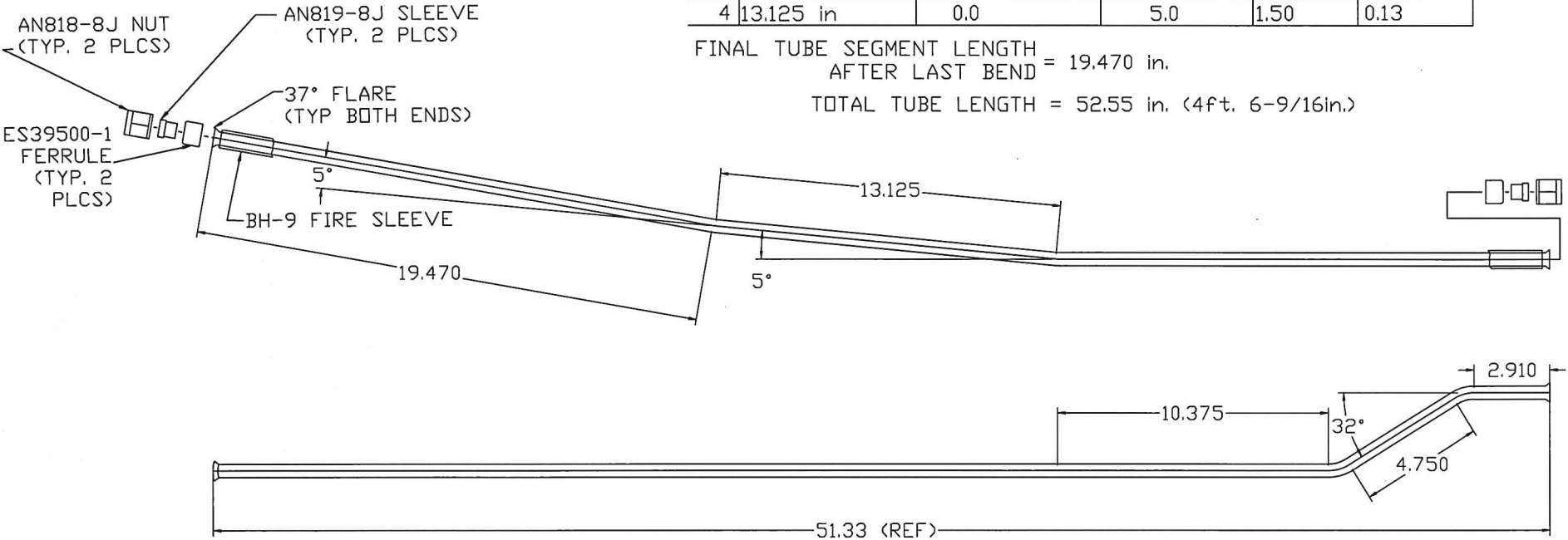
BREAK ALL SHARP EDGES

MATERIAL: 304 STAINLESS STEEL ASTM-A269-92
STOCK: 0.5 X 0.035 WALL

Bend No.	Tube Length Bend to Bend	Relative Tangent Angle Setting, Deg.	Bend Angle, Deg.	Arc Radius	Arc Length
1	2.910 in.	0.0	32.0	1.50 inch	0.84 inch
2	4.750 in.	180.0	32.0	1.50	0.84
3	10.375 in.	90.0	5.0	1.50	0.13
4	13.125 in.	0.0	5.0	1.50	0.13

FINAL TUBE SEGMENT LENGTH
AFTER LAST BEND = 19.470 in.

TOTAL TUBE LENGTH = 52.55 in. (4ft. 6-9/16in.)



-19 TUBE ASSEMBLY

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PROTO

N/C

Paravion® Inc. Technology		TITLE TUBE ASSEMBLY		DRAWING NO. S-5017	
DIMENSIONS IN INCHES TOLERANCES EXCEPT WHERE NOTED:		DRAWN BY DT	APRVD. BY ZA	CHK'D BY LS	DATE 03/23/21
.X = ± .1 .XX = ± .05 .XXX = ± .010		DO NOT SCALE DRAWING		REV K	ECO
ANGLES = ± 1°		© 2022 PARAVION TECH, INC. PARAVION IS A TRADEMARK OF PARAVION TECHNOLOGY, INC.		SHEET 13 OF 13	